#2   OIPE

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/961,086

DATE: 10/09/2001
TIME: 11:44:58

Input Set : A:\104607DV.txt
Output Set: N:\CRF3\10092001\I961086.raw

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 3 <110> APPLICANT: UNIVERSITY OF MARYLAND, BALTIMORE
 4        ROSS, Douglas D.
 5        DOYLE, L. Austin
 6        ABRUZZO, Lynne
 8 <120> TITLE OF INVENTION: BREAST CANCER RESISTANCE PROTEIN (BCRP) AND THE DNA
 9        WHICH ENCODES IT
11 <130> FILE REFERENCE: EP19376-019
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C--> 13 **<140> CURRENT APPLICATION NUMBER: US/09/961,086**
C--> 14 **<141> CURRENT FILING DATE: 2001-09-21**
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16 <150> PRIOR APPLICATION NUMBER: US 60/073,763
17 <151> PRIOR FILING DATE: 1998-02-05
19 <150> PRIOR APPLICATION NUMBER: PCT/US99/02577
20 <151> PRIOR FILING DATE: 1999-02-05
22 <160> NUMBER OF SEQ ID NOS: 7
24 <170> SOFTWARE: PatentIn Ver. 2.1
26 <210> SEQ ID NO: 1
27 <211> LENGTH: 655
28 <212> TYPE: PRT
29 <213> ORGANISM: Homo sapiens
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35 Thr Asn Gly Phe Pro Ala Thr Ala Ser Asn Asp Leu Lys Ala Phe Thr
36             20                  25                  30
38 Glu Gly Ala Val Leu Ser Phe His Asn Ile Cys Tyr Arg Val Lys Leu
39         35                  40                  45
41 Lys Ser Gly Phe Leu Pro Cys Arg Lys Pro Val Glu Lys Glu Ile Leu
42     50                  55                  60
44 Ser Asn Ile Asn Gly Ile Met Lys Pro Gly Leu Asn Ala Ile Leu Gly
45 65                  70                  75                  80
47 Pro Thr Gly Gly Gly Lys Ser Ser Leu Leu Asp Val Leu Ala Ala Arg
48                 85                  90                  95
50 Lys Asp Pro Ser Gly Leu Ser Gly Asp Val Leu Ile Asn Gly Ala Pro
51             100                 105                 110
53 Arg Pro Ala Asn Phe Lys Cys Asn Ser Gly Tyr Val Val Gln Asp Asp
54             115                 120                 125
56 Val Val Met Gly Thr Leu Thr Val Arg Glu Asn Leu Gln Phe Ser Ala
57     130                 135                 140
59 Ala Leu Arg Leu Ala Thr Thr Met Thr Asn His Glu Lys Asn Glu Arg
60 145                 150                 155                 160
62 Ile Asn Arg Val Ile Gln Glu Leu Gly Leu Asp Lys Val Ala Asp Ser
63                 165                 170                 175
65 Lys Val Gly Thr Gln Phe Ile Arg Gly Val Ser Gly Gly Glu Arg Lys
66             180                 185                 190
68 Arg Thr Ser Ile Gly Met Glu Leu Ile Thr Asp Pro Ser Ile Leu Phe
69             195                 200                 205
71 Leu Asp Glu Pro Thr Thr Gly Leu Asp Ser Ser Thr Ala Asn Ala Val
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ENTERED

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72      210                    215                    220
74 Leu Leu Leu Leu Lys Arg Met Ser Lys Gln Gly Arg Thr Ile Ile Phe
75 225                    230                    235                    240
77 Ser Ile His Gln Pro Arg Tyr Ser Ile Phe Lys Leu Phe Asp Ser Leu
78                    245                    250                    255
80 Thr Leu Leu Ala Ser Gly Arg Leu Met Phe His Gly Pro Ala Gln Glu
81                    260                    265                    270
83 Ala Leu Gly Tyr Phe Glu Ser Ala Gly Tyr His Cys Glu Ala Tyr Asn
84       275                    280                    285
86 Asn Pro Ala Asp Phe Phe Leu Asp Ile Ile Asn Gly Asp Ser Thr Ala
87       290                    295                    300
89 Val Ala Leu Asn Arg Glu Glu Asp Phe Lys Ala Thr Glu Ile Ile Glu
90 305                    310                    315                    320
92 Pro Ser Lys Gln Asp Lys Pro Leu Ile Glu Lys Leu Ala Glu Ile Tyr
93                    325                    330                    335
95 Val Asn Ser Ser Phe Tyr Lys Glu Thr Lys Ala Glu Leu His Gln Leu
96                    340                    345                    350
98 Ser Gly Gly Glu Lys Lys Lys Lys Ile Thr Val Phe Lys Glu Ile Ser
99       355                    360                    365
101 Tyr Thr Thr Ser Phe Cys His Gln Leu Arg Trp Val Ser Lys Arg Ser
102      370                    375                    380
104 Phe Lys Asn Leu Leu Gly Asn Pro Gln Ala Ser Ile Ala Gln Ile Ile
105 385                    390                    395                    400
107 Val Thr Val Val Leu Gly Leu Val Ile Gly Ala Ile Tyr Phe Gly Leu
108                    405                    410                    415
110 Lys Asn Asp Ser Thr Gly Ile Gln Asn Arg Ala Gly Val Leu Phe Phe
111                    420                    425                    430
113 Leu Thr Thr Asn Gln Cys Phe Ser Ser Val Ser Ala Val Glu Leu Phe
114      435                    440                    445
116 Val Val Glu Lys Lys Leu Phe Ile His Glu Tyr Ile Ser Gly Tyr Tyr
117      450                    455                    460
119 Arg Val Ser Ser Tyr Phe Leu Gly Lys Leu Leu Ser Asp Leu Leu Pro
120 465                    470                    475                    480
122 Met Thr Met Leu Pro Ser Ile Ile Phe Thr Cys Ile Val Tyr Phe Met
123                    485                    490                    495
125 Leu Gly Leu Lys Pro Lys Ala Asp Ala Phe Phe Val Met Met Phe Thr
126                    500                    505                    510
128 Leu Met Met Val Ala Tyr Ser Ala Ser Ser Met Ala Leu Ala Ile Ala
129      515                    520                    525
131 Ala Gly Gln Ser Val Val Ser Val Ala Thr Leu Leu Met Thr Ile Cys
132      530                    535                    540
134 Phe Val Phe Met Met Ile Phe Ser Gly Leu Leu Val Asn Leu Thr Thr
135 545                    550                    555                    560
137 Ile Ala Ser Trp Leu Ser Trp Leu Gln Tyr Phe Ser Ile Pro Arg Tyr
138                    565                    570                    575
140 Gly Phe Thr Ala Leu Gln His Asn Glu Phe Leu Gly Gln Asn Phe Cys
141      580                    585                    590
143 Pro Gly Leu Asn Ala Thr Gly Asn Asn Pro Cys Asn Tyr Ala Thr Cys
144      595                    600                    605
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146 Thr Gly Glu Glu Tyr Leu Val Lys Gln Gly Ile Asp Leu Ser Pro Trp
147     610             615             620
149 Gly Leu Trp Lys Asn His Val Ala Leu Ala Cys Met Ile Val Ile Phe
150 625             630             635             640
152 Leu Thr Ile Ala Tyr Leu Lys Leu Leu Phe Leu Lys Lys Tyr Ser
153             645             650             655
156 <210> SEQ ID NO: 2
157 <211> LENGTH: 2418
158 <212> TYPE: DNA
159 <213> ORGANISM: Homo sapiens
161 <400> SEQUENCE: 2
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163 ggtggtcttg ttaagtggaa actgctgctt tagagtttgt ttggaaggtc cgggtgactc 120
164 atcccaacat ttacatcctt aattgttaaa gcgctgcctc cgagcgcacg catcctgaga 180
165 tcctgagcct ttggttaaga ccgagctcta ttaagctgaa aagataaaaa ctctccagat 240
166 gtcttccagt aatgtcgaag tttttatccc agtgtcacaa ggaaacacca atggcttccc 300
167 cgcgacagct tccaatgacc tgaaggcatt tactgaagga gctgtgttaa gttttcataa 360
168 catctgctat cgagtaaaac tgaagagtgg ctttctacct tgtcgaaaac cagttgagaa 420
169 agaaatatta tcgaatatca atgggatcat gaaacctggt ctcaacgcca tcctgggacc 480
170 cacaggtgga ggcaaatctt cgttattaga tgtcttagct gcaaggaaag atccaagtgg 540
171 attatctgga gatgttctga taaatggagc accgcgacct gccaatttca aatgtaattc 600
172 aggttacgtg gtacaagatg atgttgtgat gggcactctg acggtgagag aaaacttaca 660
173 gttctcagca gctcttcggc ttgcaacaac tatgacgaat catgaaaaaa acgaacggat 720
174 taacagggtc attcaagagt taggtctgga taaagtggca gactccaagg ttggaactca 780
175 gtttatccgt ggtgtgtctg gaggagaaag aaaaaggact agtataggaa tggagcttat 840
176 cactgatcct tccatcttgt tcttggatga gcctacaact ggcttagact caagcacagc 900
177 aaatgctgtc cttttgctcc tgaaaaggat gtctaagcag ggacgaacaa tcatcttctc 960
178 cattcatcag cctcgatatt ccatcttcaa gttgtttgat agcctcacct tattggcctc 1020
179 aggaagactt atgttccacg ggcctgctca ggaggccttg ggatactttg aatcagctgg 1080
180 ttatcactgt gaggcctata ataaccctgc agacttcttc ttggacatca ttaatggaga 1140
181 ttccactgct gtggcattaa acagagaaga agactttaaa gccacagaga tcatagagcc 1200
182 ttccaagcag gataagccac tcatagaaaa attagcggag atttatgtca actcctcctt 1260
183 ctacaaagag acaaaagctg aattacatca actttccggg ggtgagaaga agaagaagat 1320
184 cacggtcttc aaggagatca gctacaccac ctccttctgt catcaactca gatgggtttc 1380
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187 tggaatccag aacagagctg gggttctctt cttcctgacg accaaccagt gtttcagcag 1560
188 tgtttcagcc gtggaactct ttgtggtaga gaagaagctc ttcatacatg aatacatcag 1620
189 cggatactac agagtgtcat cttatttcct tggaaaactg ttatctgatt tattacccat 1680
190 gacgatgtta ccaagtatta tatttacctg tatagtgtac ttcatgttag gattgaagcc 1740
191 aaaggcagat gccttcttcg ttatgatgtt tacccttatg atggtggctt attcagccag 1800
192 ttccatggca ctggccatag cagcaggtca gagtgtggtt tctgtagcaa cacttctcat 1860
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198 cacaattgcc tacctgaaat tgttatttct taaaaaatat tcttaaattt ccccttaatt 2220
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200 ttttgttgtt ttctgttccc ttgccatcac actgttgcac agcagcaatt gttttaaaga 2340
201 gatacatttt tagaaatcac aacaaactga attaaacatg aaagaacccca aaaaaaaaga 2400
202 tatcactcag cataatga                                                2418
205 <210> SEQ ID NO: 3
206 <211> LENGTH: 16
207 <212> TYPE: DNA
208 <213> ORGANISM: Homo sapiens
210 <400> SEQUENCE: 3
211 cgaccgacga cacaga                                                    16
214 <210> SEQ ID NO: 4
215 <211> LENGTH: 21
216 <212> TYPE: DNA
217 <213> ORGANISM: Homo sapiens
219 <400> SEQUENCE: 4
220 cttaaaatga atgcgattga t                                              21
223 <210> SEQ ID NO: 5
224 <211> LENGTH: 19
225 <212> TYPE: DNA
226 <213> ORGANISM: Homo sapiens
228 <400> SEQUENCE: 5
229 ttaggattga agccaaagg                                                 19
232 <210> SEQ ID NO: 6
233 <211> LENGTH: 21
234 <212> TYPE: DNA
235 <213> ORGANISM: Homo sapiens
237 <400> SEQUENCE: 6
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241 <210> SEQ ID NO: 7
242 <211> LENGTH: 795
243 <212> TYPE: DNA
244 <213> ORGANISM: Homo sapiens
246 <400> SEQUENCE: 7
247 tcattatgct gagtgatatc tttttttttg gaaaactgtt atctgattta ttacccatga 60
248 cgatgttacc aagtattata tttacctgta tagtgtactt catgttagga ttgaagccaa 120
249 aggcagatgc cttcttcgtt atgatgttta cccttatgat ggtggcttat tcagccagtt 180
250 ccatggcact ggccatagca gcaggtcaga gtgtggtttc tgtagcaaca cttctcatga 240
251 ccatctgttt tgtgtttatg atgatttttt caggtctgtt ggtcaatctc acaaccattg 300
252 catcttggct gtcatggctt cagtacttca gcattccacg atatggattt acggctttgc 360
253 agcataatga atttttggga caaaacttct gcccaggact caatgcaaca ggaaacaatc 420
254 cttgtaacta tgcaacatgt actggcgaag aatatttggt aaagcagggc atcgatctct 480
255 caccctgggg cttgtggaag aatcacgtgg ccttggcttg tatgattgtt attttcctca 540
256 caattgccta cctgaaattg ttatttctta aaaaatattc ttaaatttcc ccttaattca 600
257 gtatgattta tcctcacata aaaaagaagc actttgattg aagtattcaa tcaagttttt 660
258 ttgttgtttt ctgttccctt gccatcacac tgttgcacag cagcaattgt tttaaagaga 720
259 tacatttta gaaatcacaa caaactgaat taaacatgaa agaacccaaa aaaaagata 780
260 tcactcagca taatg                                                     795
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VERIFICATION SUMMARY
PATENT APPLICATION: US/09/961,086

DATE: 10/09/2001
TIME: 11:44:59

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Output Set: **N:\CRF3\10092001\I961086.raw**

L:13 M:270 C: Current Application Number differs, Replaced Current Application Number
L:14 M:271 C: Current Filing Date differs, Replaced Current Filing Date